Methods: Use 9-month-old APP/PS1 double transgenic rats according to the random assignment method divided into model group, the EA group and drug(AChE) group within 11 rats in each group, use the same months old rats with brood recessive gene as control group. Treatment was applied to "Baihui"(GV20) and"yongquan"(KI1) for 15mins, once every 2 days for 5weeks; For the drug group, 0.92 ml/g of acetylcholine enzyme was given by gavage, once a day. Morris water maze test the ability of learning-memorize in rats and space exploration ability, take the brain hippocampus to make immunohistochemistry and transmission electric lens and observe.

Results: Morris water maze test result shows that the model group compared with control group and EA group has statistically difference ($P < 0.05$); Space exploration experiment: model group in the region of the original platform quadrant (the third quadrant) activity time significantly lower than the control group and EA group($P < 0.05$), Immunohistochemitry results shows that in model group and drug group has Aβ stain on hippocampal; On transmission electron microscopy (sem) results showed that on both model group and drug group has senile plaque.

Conclusion: 10-month-old APP/PS1 transgemic rats has senile plaque; EA therapy can improve the APP/PS1 double transgenic rats learning-memorize ability, have good adjustment function to the hippocampus. These performance of EA could be improved AD's one of the mechanism of the behavior of learning and memorize ability.

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P1.037

Effect of Electro-acupuncture Intervention on Learning-memory Ability and Hippocampus Ultrastructure in APP/PS1 Double Transgenic Rats

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Purpose: To investigate the effects of the electro-acupuncture (EA) for APP/PS1 double transgenic rat on both spatial learning- memorize behavior and hippocampal ultrastructure.

Methods: Divide 36 4-month-old APP/PS1 double transgenic rats into 3 groups, which are the model group, the EA group and the drug(AChE) group, by using the random assignment method. 12 4-month-old rats with brood recessive gene were taken as the control group. For the EA group, "Baihui"(GV20) and "yongquan"(KI1) were given treatment for 15 minutes every other day, lasting for 5 weeks. Gavaging with 0.92 ml/g of acetylcholine enzyme was given to the drug group. Test the learning-memorize ability and space exploration ability of the rats by using the Morris water maze. Observe slices of the brain hippocampus CA1 area with transmission electron microscope.

Results: According to the results of the Morris water maze test, there is statistical difference between the model group and the control group($P<0.05$). Space exploration experiment: the activity time of the model in the region of the original platform quadrant (the third quadrant) is much lower than the control group($P<0.05$). The result from transmission electron microscopy shows that the micrangium, synapses and untrastructure of the control group are better than the model group.

Conclusion: EA therapy can be used to improve the learning-memorize ability of APP/PS1 double transgenic rats, and makes positive adjustment to the ultrastructure of hippocampus. These experiment results may be a mechanism of using EA therapy to improve AD rats' learning and memorize ability.

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P1.038

Bee venom suppresses the differentiation of preadipocytes and high fat diet-induced obesity through inhibiting adipogenesis

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Purpose: Bee venom (BV) is has been widely used in the treatment of some immune-related diseases. BV has been used traditionally for the relief of pain and the treatment of chronic inflammatory diseases. In addition, recent studies reported that BV inhibited proliferation of carcinoma cells via induction of apoptosis. In spite of large use, there is a shortage of documented evidence to demonstrate its medicinal utility against obesity.

Methods: In this study, we demonstrated the inhibitory effects of BV on adipocytes differentiation in 3T3-L1 cell and high fat diet (HD)-induced mouse model through inhibiting adipogenesis. Male C57BL/6 mice fed a HD for 8 weeks to induced obesity, and BV (0.1 mg/kg or 1 mg/kg) or saline were injection in the last 4 weeks.

Results: BV inhibited lipid accumulation by Oil red O staining without cytotoxicity in 3T3-L1 cell. Compared to saline-injected mice, BV-injected mice showed reduced body weight gain. BV inhibited adipogenesis by down-expression of transcription factors, CCAAT/enhancer-binding proteins (C/EBPs) and peroxisome proliferator-activated receptor gamma (PPAR-γ) using qRT-PCR and western blotting.

Conclusion: These findings showed that BV mediates anti-obesity/differentiation effects by suppressing obesity- related transcription factors. This research was supported by Basic Science Research Program through the National Research

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P1.039

Chicoric acid inhibits the production of pro-inflammatory cytokines through inhibition of NF-κB signaling pathway in HMC-1 human mast cells

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Purpose: A great number of people are suffering from allergic inflammatory disease such as asthma, atopic dermatitis, and sinusitis. Therefore discovery of drugs for the treatment of these diseases is an important subject in human health. Chicoric acid is a natural phenolic compound that has been reported to inhibit HIV integrase and to exhibit antioxidant activities. Although these biological effects of chicoric acid have been conducted, no anti-allergic inflammatory effect of chicoric acid has been reported in HMC-1 human mast cells.

Methods: HMC-1 human mast cells were incubated with chicoric acid (μM) and/or phorbol 12-myristate 13-acetate (PMA) plus A23187. Cytokine production and relevant factors expression in activated HMC-1 cells were determined by enzyme- linked immunosorbent assay (ELISA), western blot and quantitative reverse transcription-polymerase chain reaction (qRT-PCR) analysis. Also, the involvement of the mitogen-activated protein kinases (MAPKs) and nuclear factor-κB (NF- κB) in activated HMC-1 cells were studied.

Results: Chicoric acid decreased expression of pro-inflammatory cytokines, such as tumor necrosis factor (TNF)-α, interleukin (IL)-6, and IL-1β. The inhibitory effect of chicoric acid on theses pro-inflammatory cytokines was related with c-Jun N- terminal kinases (JNK), and p38 MAPK, NF-κB. We also found that chicoric acid blocked nuclear translocation of NF- κB inhibiting the phosphorylation of IκBα and suppressed NF-κB transcriptional activity in stimulated HMC-1 cells.

Conclusion: Our results showed that chicoric acid down-regulates mast cell-derived allergic inflammatory reactions by blocking histamine release and expression of pro-inflammatory cytokines. In light of in vitro anti-allergic inflammatory effects, chicoric acid could be a beneficial anti-allergic inflammatory agent. This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (NRF-2014R1A1A2008663).

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P1.040

Water extract of Magnolia officinalis cortex Inhibits Osteoclastogenesis and Bone resorption by Downregulation of Nuclear Factor of Activated T Cells

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Purpose: Magnolia officinalis cortex has been traditionally used to treat stomach and intestine diseases in Traditional Chinese Medicine. In this study, we investigated the effect of water extract of Magnolia officinalis cortex (WEMC) on osteoclast differentiation and function.

Methods: We examined the effect of water extract of Magnolia officinalis cortex (WEMC) in activator of nuclear factor-κB ligand (RANKL)-induced osteoclast differentiation and resorption activity. Osteoclast differentiation of bone marrow-derived macrophages was determined by tartrate-resistant acid phosphatase activity assay. RANKL-related transcription factors and signaling factors were analyzed by Western blot and real-time PCR. Bone resorption function of mature osteoclasts was evaluated by pit formation assay. The in vivo effect of WEMC on RANKL-induced bone destruction model was investigated by bone loss model.

Results: WEMC inhibited osteoclast differentiation of osteoclast precursor cells induced by RANKL, a key cytokine for osteoclast differentiation. Gallic acid and honokiol were identified in WEMC as active constituents contributing to the inhibitory effect of WEMC on osteoclast differentiation. WEMC suppressed RANKL-induced activation of p38 and NF- NF-kappaB pathways and expression of c-Fos and nuclear factor of activated T cells cytoplasmic 1 (NFATc1), key transcription factors for osteoclast differentiation. Ectopic overexpression of a constitutive active form of NFATc1 rescued the anti-osteoclastogenic effect of WEMC. In addition, WEMC decreased bone resorbing activity of mature osteoclasts. Consistent with the in vitro results, WEMC significantly suppressed RANKL-induced osteoclastic bone resorption and trabecular bone loss in mice.

Conclusion: WEMC might have a therapeutic potential to treat pathological bone diseases by inhibiting osteoclastogenesis and bone resorption.

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Phytochemical screening of Pure Chemical compounds by Off-line and On-line Methods Assay

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Purpose: Generally, OMHs is very effective for anti-cancer, anti-inflammat and anti-virus. It also receives much attention